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TITLE: RECOVERING METHOD FOR HEAT OF REACTION

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ABSTRACT:

PURPOSE: To recover the heat of reaction as electrical energy efficiently in synthesizing an aromatic hydrocarbon from coal, natural gas, etc., by driving a turbine with the heat of the reaction generated in the course of the synthesis.

CONSTITUTION: A synthesis gas is produced from coal, natural gas and/or other

raw material gases for the synthesis gas in a natural gas reforming reaction apparatus 1, and an aromatic hydrocarbon is synthesized from the resultant synthesis gas, if necessary via methanol, in a synthetic reaction apparatus 2 for synthesizing gasoline 2. In the process, the synthetic reaction gas is subjected to the heat exchange with water to generate steam, which is then heated with an outlet synthetic natural gas (about 350°C) produced in the

steam reforming reaction apparatus 1 for the synthetic natural gas from the raw

material for the synthesis gas, e.g. the natural gas or coal, to drive a turbine 5 as superheated steam and recover the electrical energy.

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